Automatic Simplification of Tetrahedral Meshes

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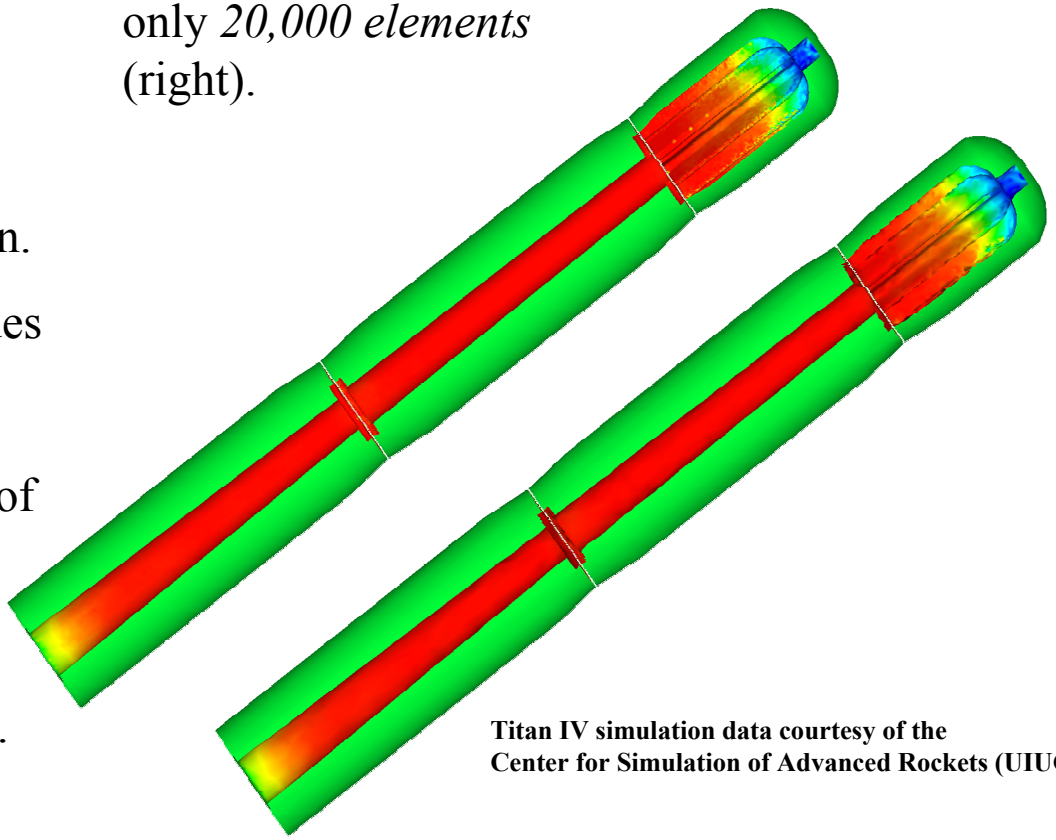
Description:
Large scale computer simulations can produce vast quantities of information. While obviously important for scientific accuracy, such data is often excessively detailed for the purposes of interactive display and exploration.

We have developed new techniques for efficiently reducing the complexity of finite element solutions containing any number of scalar fields. Our system can remove 90% or more of the data in a typical dataset while retaining very high visual fidelity.

Example:
Reduction of a tetrahedral mesh containing *2.7 million elements* (left) to one containing only *20,000 elements* (right).



Titan IV simulation data courtesy of the Center for Simulation of Advanced Rockets (UIUC)